Page 4, paragraph starting at line 12:

a2

In accordance with the principles of the present invention, a method of scanning a switch matrix comprises, driving one at a time at least one of a plurality of row conductors with a predetermined voltage level, monitoring each of a plurality of column conductors while one of the plurality of row conductors is being driven with the predetermined voltage level, driving one at a time at least one of a plurality of column conductors with a predetermined voltage level, and monitoring each of a plurality of row conductors while one of the plurality of column conductors is being driven with the predetermined voltage level.

Page 7, paragraph starting at line 15:

a3

For example, assume that the push button **K5** (and no other push button at the same time) is pressed. The scanning algorithm would first drive **Row 1** Low (and drive **Rows 2** and **3** HIGH or high impedance (i.e., tri-stated output), and check the voltage levels of each of columns **Col. 1 – Col. 3**, one column at a time. Because the push buttons **K1-K3** were not pressed, a high voltage level, e.g., VDD, or a high impedance voltage level would be detected at each of columns **Col. 1 – Col. 3**.

Page 14, paragraph starting at line 18:

a4

In contrast to a conventional switch matrix, the switch matrix of the present invention may be scanned by applying a level voltage, e.g., level LOW voltage and level High Impedance voltage, no AC noise signal may be present in the conductors **31** and **32**. Thus, although the embodiments of Figs. 4 and 5 show optional EMI capacitors **39** for protection against electro-static discharge (ESD) damages, the capacitors **39** are not necessary for proper operation of the switch matrices shown in Figs. 4 and 5. Thus, the present invention provides switch matrices that can be properly scanned without the need for AC coupling capacitors.

Page 16, paragraph starting at line 8:

The forward or reverse signal **$\overline{\text{FOR}}$/REV** together with the selection signals is used to select which driver **37** is to be enabled, and also supplies LOW signal to the input of drivers **37**. The OR-Gates **13** ensure that the row drivers **37** are enabled only when both **$\overline{\text{FOR}}$/REV** signal and the respective selection signal are low, and that the column drivers **37** are enabled only when the inverse of **$\overline{\text{FOR}}$/REV** signal and the respective selection signal are both low. The inverter **11** inverts the **$\overline{\text{FOR}}$/REV** signal to ensure that the rows or the columns are not both enabled at the same time. The truth table for the **$\overline{\text{FOR}}$/REV** signal and the selection signals with respect to the selection of a driver to be enabled is shown in Table 1 below.

a5

Table 1

$\overline{\text{FOR}}$/REV	**SEL (0)**	**SEL (1)**	**SEL (2)**	**Driver 37' output of**
0	0	1	1	Row 1 LOW, all other Hi-Z
0	1	0	1	Row 2 LOW, all other Hi-Z
0	1	1	0	Row 3 LOW, all other Hi-Z
1	0	1	1	Col. 1 LOW, all other Hi-Z
1	1	0	1	Col. 2 LOW, all other Hi-Z
1	1	1	0	Col. 3 LOW, all other Hi-Z

Page 17, paragraph starting at line 1:

The scanning algorithm cycles through the above sequence of signals of **$\overline{\text{FOR}}$/REV, SEL (0), SEL (1)** and **SEL (2)** as shown in table 1 above.

Page 18, paragraph starting at line 27:

For example, during the time periods **t1-t9**, **$\overline{\text{FOR}}$/REV** is low, and the signal from the inverter **11** is HIGH, thus all column drivers **37** are disabled, and appear to column conductors **32** as if they are entirely absent. Thus, during the time periods **t1-t9**, a forward scan is performed, i.e., rows are driven and columns are monitored.

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Page 19, paragraph starting at line 9:

Immediately following the forward scan, i.e., during time periods **t10-t18**, the scanning algorithm would produce a HIGH $\overline{\textbf{FOR}}$/**REV** signal, which disables all row drivers **37** to output high impedance signal. The column drivers **37** are driven LOW, one at a time, and each of the row receivers **36** is read as shown. Because the LOW signal at the cathodes of the diodes **12**, the diode **12** is forward biased if the corresponding switching element, i.e., the corresponding one of the push buttons **KA-KI**, is closed. Thus, when one of the switching elements **KA-KI** is closed, the corresponding row receiver **36** will read the LOW voltage (with the forward voltage drop of the diode added) when the corresponding column is driven LOW.

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